

SEQUENCE LISTING

<110> Ira Herman
Alice Welch

<120> BETA-CAP73 CONTROL OF NORMAL AND
ABNORMAL CELL MIGRATION

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<141> 2000-12-28

<150> 60/170,182
<151> 1999-12-10

<150> 09/733,818
<151> 2000-12-08

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gtctctctga gggctggctt tgtgagccac agtgatttgt aacttaatgc gaactaattt 360
gctgttagca acaagaaact aaatcctgtc t atg atg agc tgt tgg ttt tct 412
Met Met Ser Cys Trp Phe Ser
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atc ctt gct aaa aag gga gtc aat cca ggc aag cta gat gta gaa ggc 556
Ile Leu Ala Lys Lys Gly Val Asn Pro Gly Lys Leu Asp Val Glu Gly
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aga tct gcc ttt cat gtt gtg gcc tca aag gga aat ctt gag tgt ttg 604

Arg Ser Ala Phe His Val Val Ala Ser Lys Gly Asn Leu Glu Cys Leu
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aat gcc atc ctc ata cat gga gtt gat att aca acc agt gac acc gca 652
 Asn Ala Ile Leu Ile His Gly Val Asp Ile Thr Thr Ser Asp Thr Ala
 75 80 85

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 Gly Arg Asn Ala Leu His Leu Ala Ala Lys Tyr Gly His Ala Leu Cys
 90 95 100

cta caa aaa ctt cta cag tac aat tgt ccc act gaa cat gta gac ctg 748
 Leu Gln Lys Leu Leu Gln Tyr Asn Cys Pro Thr Gln His Val Asp Leu
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cag gga aga act gca ctt cat gat gca gct atg gca gac tgt cct tct 796
 Gln Gly Arg Thr Ala Leu His Asp Ala Ala Met Ala Asp Cys Pro Ser
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agc ata cag ctg ctc tgc gac cat ggg gcc tcg gtg aat gcc aaa gat 844
 Ser Ile Gln Leu Leu Cys Asp His Gly Ala Ser Val Asn Ala Lys Asp
 140 145 150

gta gat ggg cgg aca cca ctt gtt ctg gct acc cag atg tgt agg cca 892
 Val Asp Gly Arg Thr Pro Leu Val Leu Ala Thr Gln Met Cys Arg Pro
 155 160 165

aca ata tgt caa ctg ctg ata gat aga ggg gcg gat att aat tcc aga 940
 Thr Ile Cys Gln Leu Leu Ile Asp Arg Gly Ala Asp Ile Asn Ser Arg
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gac aaa caa aac agg act gct ctc atg cta gga tgc gag tat ggt tgc 988
 Asp Lys Gln Asn Arg Thr Ala Leu Met Leu Gly Cys Glu Tyr Gly Cys
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ctg gac gcc ctt ggc cat gac agt tct tac tat gca aga att ggt gac 1084
 Leu Asp Ala Leu Gly His Asp Ser Ser Tyr Tyr Ala Arg Ile Gly Asp
 220 225 230

aat ctg gac att cta acc tta ctg aag act gca tca gaa aat tcc aac 1132
 Asn Leu Asp Ile Leu Thr Leu Leu Lys Thr Ala Ser Glu Asn Ser Asn
 235 240 245

aaa ggg aga gaa ctt tgg aag aaa gga cca tct tta caa cag cga aat 1180
 Lys Gly Arg Glu Leu Trp Lys Lys Gly Pro Ser Leu Gln Gln Arg Asn
 250 255 260

ttg tct cag atg cta gat gaa gta aat acg aag tca aat cag agg gag 1228
 Leu Ser Gln Met Leu Asp Glu Val Asn Thr Lys Ser Asn Gln Arg Glu
 265 270 275

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 His Gln Asn Ile Gln Asp Leu Glu Ile Glu Asn Glu Asp Leu Lys Glu

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aat ggt tta cag cta cag ctg aat gag gaa gta atg gtg gct gat gat Asn Gly Leu Gln Leu Gln Leu Asn Glu Glu Val Met Val Ala Asp Asp 315 320 325			1372
ctg gaa agt gag aaa gaa aag ctg aag tcc ctt ttg gca gcc aaa gaa Leu Glu Ser Glu Lys Glu Lys Leu Lys Ser Leu Leu Ala Ala Lys Glu 330 335 340			1420
aag cag cat gaa gaa agc cta aga act att gag gct ctg aaa agt aga Lys Gln His Glu Glu Ser Leu Arg Thr Ile Glu Ala Leu Lys Ser Arg 345 350 355			1460
ttt aag tat ttt gag agt gat cat tta gga tca gga agt cat ttc agg Phe Lys Tyr Phe Glu Ser Asp His Leu Gly Ser Gly Ser His Phe Arg 360 365 370 375			1516
aaa gaa gat atg ctt ctt aaa caa ggt caa atg tac atg aca gac tca Lys Glu Asp Met Leu Leu Lys Gln Gly Gln Met Tyr Met Thr Asp Ser 380 385 390			1564
cag tgt act tcc aca ggc atg cca gtc cat atg caa agc cga tct atg Gln Cys Thr Ser Thr Gly Met Pro Val His Met Gln Ser Arg Ser Met 395 400 405			1612
tta aga cca ctg gag cta gcc tta cct aat caa gcc tca tat tgg gaa Leu Arg Pro Leu Glu Leu Ala Leu Pro Asn Gln Ala Ser Tyr Ser Glu 410 415 420			1660
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tca gca aaa caa gac aga ctc aaa ctc caa aat gaa ctg gct cac aag Ser Ala Lys Gln Asp Arg Leu Lys Leu Gln Asn Glu Leu Ala His Lys 440 445 450 455			1756
gtg gcg gag tgc aag gcc tta gca ttg gaa tgt gaa agg gtg aaa gag Val Ala Glu Cys Lys Ala Leu Ala Leu Glu Cys Glu Arg Val Lys Glu 460 465 470			1804
gat tca gat gag cag ata aag caa cta gaa gat gcc ttg aaa gac gtg Asp Ser Asp Glu Gln Ile Lys Gln Leu Glu Asp Ala Leu Lys Asp Val 475 480 485			1852
cag aag aga atg tat gag tgc gaa ggt aaa gtg aaa caa atg cag aca Gln Lys Arg Met Tyr Glu Ser Glu Gly Lys Val Lys Gln Met Gln Thr 490 495 500			1900
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aac cac agg ctg atg gag gaa ctg aag gat cag ttg aaa gac atg aaa	1996
Asn His Arg Leu Met Glu Glu Leu Lys Asp Gln Leu Lys Asp Met Lys	
520 525 530 535	
gtg aaa tac gaa ggt gcg tcc gca gaa gtg ggg aaa ttg aga aac caa	2044
Val Lys Tyr Glu Gly Ala Ser Ala Glu Val Gly Lys Leu Arg Asn Gln	
540 545 550	
atc aaa caa aat gaa atg tta gtt gaa gag ttt aag aga gat gag ggc	2092
Ile Lys Gln Asn Glu Met Leu Val Glu Glu Phe Lys Arg Asp Glu Gly	
555 560 565	
aag ctg atg gaa gag aat aag cga ctg cag aag gag ttg agc atg tgc	2140
Lys Leu Met Glu Glu Asn Lys Arg Leu Gln Lys Glu Leu Ser Met Cys	
570 575 580	
gaa ctg gag cga gag aag aga gga agg aag ctc act gag atg gaa ggc	2188
Glu Leu Glu Arg Glu Lys Arg Gly Arg Lys Leu Thr Glu Met Glu Gly	
585 590 595	
cag tta aag gac ttg tca gcc aag ctg gcc ctt tct att cca gca gag	2236
Gln Leu Lys Asp Leu Ser Ala Lys Leu Ala Leu Ser Ile Pro Ala Glu	
600 605 610 615	
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Lys Phe Glu Asn Met Lys Ser Leu Leu Ser Asn Glu Leu Asn Glu Lys	
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Ala Lys Lys Leu Ile Asp Val Glu Arg Glu Tyr Glu Arg Ser Leu Asn	
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Glu Thr Arg Pro Leu Lys Arg Glu Leu Glu Asn Leu Lys Ala Lys Leu	
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Ala Gln His Val Lys Pro Glu Glu His Glu Gln Leu Lys Ser Arg Leu	
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Glu Gln Lys Ser Gly Glu Leu Gly Lys Arg Ile Thr Glu Leu Thr Ser	
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Lys Leu Leu Thr Gln Gln Val Asn Asn Leu Thr Thr Glu Met Lys Asn	
715 720 725	
gtc cct tta aaa gta agt gaa gaa atg aaa aag tca cat gat gta att	2620
Val Pro Leu Lys Val Ser Glu Glu Met Lys Lys Ser His Asp Val Ile	
730 735 740	

gtt gat gat ttg aat aaa aag ctt tca gat gtg aca cac aaa tat aca 2668
 Val Asp Asp Leu Asn Lys Lys Leu Ser Asp Val Thr His Lys Tyr Thr
 745 750 755

gaa aag aag ttg gaa atg gag aag ttg ctt atg gaa aat gcc agt tta 2716
 Glu Lys Lys Leu Glu Met Glu Lys Leu Leu Met Glu Asn Ala Ser Leu
 760 765 770 775

agt aaa aat gtc agc cgc ctg gaa act gtg ttc ata cct ccc gag aga 2764
 Ser Lys Asn Val Ser Arg Leu Glu Thr Val Phe Ile Pro Pro Glu Arg
 780 785

cac gaa aaa gaa atg atg gct ctg aaa tcc aat atc act gaa ctt aag 2812
 His Glu Lys Glu Met Met Ala Leu Lys Ser Asn Ile Thr Glu Leu Lys
 795 800 805

aag cag ctg tct gaa ctt aat aaa aaa tgt ggt gaa gac caa gag aaa 2860
 Lys Gln Leu Ser Glu Leu Asn Lys Lys Cys Gly Glu Asp Gln Glu Lys
 810 815 820

ata tat tca ctc atg tct gaa aac aat gat ttg aaa aag acc atg agt 2908
 Ile Tyr Ser Leu Met Ser Glu Asn Asn Asp Leu Lys Lys Thr Met Ser
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 His Gln Tyr Val Pro Val Lys Thr His Glu Glu Ile Lys Thr Ala Leu
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agt agc aca ttg gat aaa acc aat aga gaa tta gta gat gtg aag aag 3004
 Ser Ser Thr Leu Asp Lys Thr Asn Arg Glu Leu Val Asp Val Lys Lys
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 Lys Cys Glu Asp Ile Asn Gln Glu Phe Val Lys Ile Lys Asp Glu Asn
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gaa ata tta aaa aga aat ctg gag aac act cag aac caa gta aaa gct 3100
 Glu Ile Leu Lys Arg Asn Leu Glu Asn Thr Gln Asn Gln Val Lys Ala
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gag tac atc agc cta aga gag cat gaa gaa aag atg agt ggc cta agg 3148
 Glu Tyr Ile Ser Leu Arg Glu His Glu Glu Lys Met Ser Gly Leu Arg
 905 910 915

aag agc atg aag aag gtc cag gac aac agc gct gaa ata ctg gct aag 3196
 Lys Ser Met Lys Lys Val Gln Asp Asn Ser Ala Glu Ile Leu Ala Lys
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tac aaa aaa agc cag gag gag att gtc acc ctg cat gag gag att gca 3244
 Tyr Lys Lys Ser Gln Glu Glu Ile Val Thr Leu His Glu Glu Ile Ala
 940 945 950

gcc cag aag aga gaa ctc gac acg ata cag gaa tgc atc aag cta aaa 3292
 Ala Gln Lys Arg Glu Leu Asp Thr Ile Gln Glu Cys Ile Lys Leu Lys
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tat gct ccg atc atc agc ttg gaa gag tgt gag aga aaa ttt aaa gcc 3340

Tyr Ala Pro Ile Ile Ser Leu Glu Glu Cys Glu Arg Lys Phe Lys Ala
970 975 980

act gag aaa gaa cta aaa gaa cag cta tcc cag cag aca cag aag tat 3388
Thr Glu Lys Glu Leu Lys Glu Gln Leu Ser Gln Gln Thr Gln Lys Tyr
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Asn Thr Ser Glu Glu Glu Ala Lys Lys Cys Lys Gln Glu Asn Asp Lys
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Leu Lys Lys Glu Ile Leu Thr Leu Gln Lys Asp Leu Lys Asp Lys Asn
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Val His Ile Glu Asn Ser Tyr Glu Thr Glu Arg Ala Leu Ser Arg Lys
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1080 1085 1090 1095

ccg ctg gag cag gtt gag tcc ctg aaa aaa tct ctt agt ggt aca atc 3724
Pro Leu Glu Gln Val Glu Ser Leu Lys Lys Ser Leu Ser Gly Thr Ile
1100 1105 1110

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Glu Thr Leu Lys Glu Glu Leu Lys Thr Lys Gln Arg Cys Tyr Glu Lys
1115 1120 1125

gag cag cag aca gtg acc caa ctg cgg cag atg ctg gag aat cag aag 3820
Glu Gln Gln Thr Val Thr Gln Leu Arg Gln Met Leu Glu Asn Gln Lys
1130 1135 1140

aac tcc tct gtg ccc ctg gct gag cat ttg cag gtt aag gaa gca ttt 3868
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1145 1150 1155

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Asp Leu Ser Lys Tyr Lys Ala Thr Lys Ser Asp Leu Glu Thr Gln Ile			
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tcc gac tta aac gaa aaa ttg gcc aat ctg aat agg aag tat gag gaa			4108
Ser Asp Leu Asn Glu Lys Leu Ala Asn Leu Asn Arg Lys Tyr Glu Glu			
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Val Cys Glu Glu Val Leu His Ala Lys Lys Lys Glu Leu Ser Ala Lys			
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gat gag aag gaa ttg ctc cat ttc agc ata gag caa gaa atc aaa gat			4204
Asp Glu Lys Glu Leu Leu His Phe Ser Ile Glu Gln Glu Ile Lys Asp			
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cag cag gaa cga tgt gac aaa tcc tta aca acc atc acg gag cta cag			4252
Gln Gln Glu Arg Cys Asp Lys Ser Leu Thr Thr Ile Thr Glu Leu Gln			
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Arg Arg Ile Gln Glu Ser Ala Lys Gln Ile Glu Ala Lys Asp Asn Lys			
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Ile Thr Glu Leu Leu Asn Asp Val Glu Arg Leu Lys Gln Ala Leu Asn			
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agt cag ctg att gac agc ctg cag cag cag gtc agg tcc ctg cag cag			4444
Ser Gln Leu Ile Asp Ser Leu Gln Gln Gln Val Arg Ser Leu Gln Gln			
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Gln Leu Ala Asp Ala Asp Arg Gln His Gln Glu Val Ile Ala Ile Tyr			
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cgg aca cac ctt ctt agt gct gca cag ggt cac atg gat gag gat gtg			4540
Arg Thr His Leu Leu Ser Ala Ala Gln Gly His Met Asp Glu Asp Val			
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cag gcc gcc tta ctg cag atc ata cag atg cgg cag ggg ctc gtg tgc			4588
Gln Ala Ala Leu Leu Gln Ile Ile Gln Met Arg Gln Gly Leu Val Cys			
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1400			
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35 40 45
Gly Lys Leu Asp Val Glu Gly Arg Ser Ala Phe His Val Val Ala Ser
50 55 60
Lys Gly Asn Leu Glu Cys Leu Asn Ala Ile Leu Ile His Gly Val Asp
65 70 75 80
Ile Thr Thr Ser Asp Thr Ala Gly Arg Asn Ala Leu His Leu Ala Ala
85 90 95
Lys Tyr Gly His Ala Leu Cys Leu Gln Lys Leu Leu Gln Tyr Asn Cys
100 105 110
Pro Thr Glu His Val Asp Leu Gln Gly Arg Thr Ala Leu His Asp Ala
115 120 125
Ala Met Ala Asp Cys Pro Ser Ser Ile Gln Leu Leu Cys Asp His Gly
130 135 140
Ala Ser Val Asn Ala Lys Asp Val Asp Gly Arg Thr Pro Leu Val Leu
145 150 155 160
Ala Thr Gln Met Cys Arg Pro Thr Ile Cys Gln Leu Leu Ile Asp Arg
165 170 175
Gly Ala Asp Ile Asn Ser Arg Asp Lys Gln Asn Arg Thr Ala Leu Met
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Leu Gly Cys Glu Tyr Gly Cys Lys Asp Ala Val Glu Val Leu Ile Lys
195 200 205
Asn Gly Ala Asp Val Thr Leu Leu Asp Ala Leu Gly His Asp Ser Ser
210 215 220
Tyr Tyr Ala Arg Ile Gly Asp Asn Leu Asp Ile Leu Thr Leu Leu Lys
225 230 235 240
Thr Ala Ser Glu Asn Ser Asn Lys Gly Arg Glu Leu Trp Lys Lys Gly
245 250 255
Pro Ser Leu Gln Gln Arg Asn Leu Ser Gln Met Leu Asp Glu Val Asn
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Thr Lys Ser Asn Gln Arg Glu His Gln Asn Ile Gln Asp Leu Glu Ile
275 280 285
Glu Asn Glu Asp Leu Lys Glu Arg Leu Arg Lys Ile Gln Gln Glu Gln
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Arg Ile Leu Leu Asp Lys Val Asn Gly Leu Gln Leu Gln Leu Asn Glu
305 310 315 320
Glu Val Met Val Ala Asp Asp Leu Glu Ser Glu Lys Glu Lys Leu Lys
325 330 335
Ser Leu Leu Ala Ala Lys Glu Lys Gln His Glu Glu Ser Leu Arg Thr
340 345 350
Ile Glu Ala Leu Lys Ser Arg Phe Lys Tyr Phe Glu Ser Asp His Leu
355 360 365
Gly Ser Gly Ser His Phe Arg Lys Glu Asp Met Leu Leu Lys Gln Gly
370 375 380
Gln Met Tyr Met Thr Asp Ser Gln Cys Thr Ser Thr Gly Met Pro Val
385 390 395 400
His Met Gln Ser Arg Ser Met Leu Arg Pro Leu Glu Leu Ala Leu Pro

405 410 415
 Asn Gln Ala Ser Tyr Ser Glu Asn Glu Ile Leu Lys Lys Glu Leu Glu
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 Ala Met Arg Thr Phe Cys Asp Ser Ala Lys Gln Asp Arg Leu Lys Leu
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 Lys Val Lys Gln Met Gln Thr His Phe Leu Ala Leu Lys Glu His Leu
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 Thr Ser Asp Ala Ala Thr Gly Asn His Arg Leu Met Glu Glu Leu Lys
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 Glu Asn Leu Lys Ala Lys Leu Ala Gln His Val Lys Pro Glu Glu His
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 Lys Lys Ser His Asp Val Ile Val Asp Asp Leu Asn Lys Lys Leu Ser
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 Val Phe Ile Pro Pro Glu Arg His Glu Lys Glu Met Met Ala Leu Lys
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 Val Lys Ile Lys Asp Glu Asn Glu Ile Leu Lys Arg Asn Leu Glu Asn 895
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 Glu Lys Met Ser Gly Leu Arg Lys Ser Met Lys Lys Val Gln Asp Asn 925
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